

Appln. No.: 10/530,899  
Response to Office Action mailed August 22, 2007

### REMARKS/ARGUMENTS

The Office Action of August 22, 2007, has been carefully reviewed and these remarks are responsive thereto. Reconsideration and allowance of the above-identified application are respectfully requested.

Claims 1-7 have been amended to more clearly recite the features claimed therein. New claim 8 has been added. Support for the amendments to the claims can be found, for example, at page 4, lines 3-28 of the specification. No new matter has been added, and entry of the amendments to claims 1-7 and the addition of claim 8 is respectfully requested.

Claims 1-8 are pending.

### Claim Rejections

In the Office Action, claims 1-3, 6, and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jouppi et al, "Tradeoffs in Two-level on-Chip Caching" (Jouppi) in view of U.S. Patent No. 4,008,460 to Bryant et al., (Bryant).

Also in the Office Action, claims 4 and 5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jouppi and Bryant and further in view of U.S. Patent No. 5,513,336 to Vishlitsky (Vishlitsky)

These rejections are respectfully traversed.

Applicants submit that there is no proper motivation or suggestion to combine Jouppi with Bryant as done by the Examiner. The Office Action states that it would have been obvious "to have used a LRU replacement algorithm as described by Bryant with the first memory of Jouppi because LRU provides performance benefits by replacing items which have been deemed to be least important because they have been least recently used." This is not a motivation to combine references, however, but rather is the conclusion the Examiner has apparently reached after having benefited from reading Applicant's own disclosure, and is thus impermissible hindsight.

The Federal Circuit has repeatedly stated that the limitations of a claim in a pending application cannot be used as a blueprint to piece together prior art in hindsight, and that the Patent Office should *rigorously* apply the requirement that a teaching or motivation to combine prior art references be provided. *See, e.g., In re Dembiczak*, 50 U.S.P.Q.2d 1614.

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(Fed. Cir. 1999) (emphasis added). Thus, Applicants respectfully submit that that there is no motivation or suggestion to combine Jouppi, which describes two-level caching wherein data is moved from a second-level cache to a first-level cache and vice versa, with Bryant, which describes a Least Recently Used algorithm for determining which data block can be replaced with new information. Even assuming that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, as is often argued by the Office, the Office Action provides no evidence that the combination takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, nor does the Office Action provide any evidence that the combination does not include knowledge gleaned only from Applicant's disclosure. Thus, the combination is an improper combination based on hindsight.

Applicant also respectfully submits that one skilled in the art would in fact not have been motivated to combine Jouppi with Bryant at the time the invention was made. For example, Applicant submits that a person skilled in the art would not be motivated to use the LRU replacement algorithm for removing items in the first memory while using a pseudo-random algorithm for removing items from the second memory, but rather, would use the same replacement algorithm – whether LRU or pseudo-random – for both. In addition, using LRU for just one memory, as suggested by the Examiner's rejection, would require the use of two replacement algorithms, which is something that the skilled person surely would avoid.

In addition, Applicant respectfully submits that the combination of Jouppi and Bryant does not describe all of the features recited in the claims.

Amended claim 1 recites:

a first memory adapted to memorize a maximum of  $M$  items that were last presented to said device,  $M$  being a natural integer less than  $N$ ;

a second memory adapted to memorize  $N-M$  second items, each of said  $N-M$  items being different from each of said  $M$  items, an oldest of said  $M$  items in said first memory being moved to said second memory if said first memory already contains  $M$  items when a first item is presented for memorization in said device;

means for randomly selecting one of said second items memorized in the second memory and for removing the selected item if said second memory already contains  $N-M$  items when said first item is presented for memorization in said device; and

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means to memorize said first item in said device, wherein said first item becomes a newest of said M items in said first memory.

Applicant respectfully submits that even if proper, the combination of Jouppi and Bryant does not describe at least these recited features of claim 1 as amended herein.

Jouppi describes a system and method for two-level caching wherein if an item is not in the first cache, it is written into that first cache, either from a second cache or from another source. When the first cache is full and a new item is presented to be written into the first cache, an item in the first cache is removed from the first cache and transferred into the second cache. Jouppi does not, however, describe how the item in the first cache is chosen for removal nor does it describe what happens if the second cache does not have sufficient capacity to receive the item from the first cache. See Jouppi at p. 43.

In addition, as the Examiner acknowledges, Jouppi does not describe that the first memory stores the M items that were last presented to the device. The Examiner cites to Bryant, and the "least recently used" (LRU) replacement algorithm described therein, to provide this feature of claim 1 that is missing from Jouppi. The Examiner asserts that the LRU algorithm described in Bryant describes that the block in the buffer (i.e., the cache) which was referenced most recently is assumed to be the least important, and therefore can be written over, i.e., replaced with the M items that were last presented to the device. The Examiner further asserts that it would have been obvious to one of ordinary skill in the art to use an LRU replacement algorithm as described in Bryant with the first memory of Jouppi because LRU provides performance benefits by replacing items which have been deemed to be least important because they have been least recently used.

However, Bryant does not describe removing the oldest item from the first memory and moving it to a second memory, merely that the item that was least recently used can be written over and replaced with the new item to be added to memory.

Thus, Applicant respectfully submits that the combination of Jouppi and Bryant does not describe or suggest all of the features recited in claim 1, and withdrawal of the rejection and allowance of claim 1 is respectfully requested.

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Claim 6 has been amended to place it in more proper independent form by incorporating the features of a device as recited in claim 1. Applicants submit, therefore, that claim 6 is also allowable over the combination of Jouppi and Bryant for the same reasons set forth above with respect to claim 1 and further by reason of the additional inventive steps recited therein. Withdrawal of the rejection of claim 6 over Jouppi and Bryant and allowance is respectfully requested.

Claims 2 and 3 depend from claim 1. Applicant respectfully submits that claims 2 and 3 also are allowable over the combination of Jouppi and Bryant because of their dependence on allowable base claim 1 and further because of the additional inventive features recited therein. Claim 7 depends from claim 6. As with claims 2 and 3, Applicant respectfully submits that claim 7 is allowable over the combination of Jouppi and Bryant, both because of its dependence on allowable claim 6 and further because of the additional inventive steps recited therein.

Withdrawal of the rejections of claims 2, 3, and 7 and allowance thereof are respectfully requested.

Claims 4 and 5 depend from claim 1. With respect to claims 4 and 5, the additional cited reference to Vishlitzky describes use of an access counter which is examined to determine how many times a data element has been accessed. Examination of such an access counter can determine if a data element has been accessed more than some number of times. Vishlitzky at col. 6, lines 14-26. Vishlitzky does not, however, cure the deficiencies of the combination of Jouppi and Bryant with respect to claim 1, nor does the Examiner cite to Vishlitzky for this purpose. It is thus respectfully submitted that the combination of Jouppi, Bryant, and Vishlitzky does not describe or suggest all of the features recited in claims 4 and 5, and withdrawal of the rejection and allowance of claims 4 and 5 is respectfully requested.

Finally, Applicant respectfully submits that claim 8, which depends from claim 1, also is allowable over any combination of Jouppi, Bryant, and Vishlitzky as set forth in the Office Action, and allowance of claim 8 is respectfully requested.

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### CONCLUSION

All rejections having been addressed, Applicant respectfully submits that the present application is in condition for allowance with claims 1-8, and respectfully solicits prompt notification of the same. However, if for any reason the Examiner believes the application is not in condition for allowance or there are any questions, the Examiner is requested to contact the undersigned at 609-734-6440.

Respectfully submitted,  
Eric Diehl

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Date

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